

5 **CLAIMS**

1 Process for the manufacture of polyvinylidene fluoride (PVDF)
homopolymer or copolymer by radical polymerization of vinylidene fluoride
(VDF), and optionally of a comonomer, in aqueous dispersion and in the
10 presence of a transfer agent, of a persulphate as radical initiator, optionally of a
surface-active additive and optionally of a paraffin wax, in which:

- a) an aqueous PVDF dispersion is obtained,
- b) the dispersion from stage a) is washed, optionally after having been
coagulated, to lower the proportion of possible surfactant in the PVDF to below
15 300 ppm, this proportion being expressed with respect to the dried PVDF,
- c) sodium acetate and optionally a potassium alkylsulphonate are added
to the dispersion washed in b),
- d) the dispersion from stage c) is dried by any means to recover the
PVDF powder comprising sodium acetate and optionally a potassium alkyl-
20 sulphonate.

2 Process according to Claim 1, in which the surface-active additive
is chosen from those of general formula: $ZC_nF_{2n}COOM$
in which Z is a fluorine or chlorine atom, n is an integer with a value from 6 to 13
25 and M is a hydrogen or alkali metal atom or an ammonium group or an
ammonium group comprising at least one lower alkyl substituent.

3 Process according to Claim 1, in which the proportion of sodium
acetate is between 50 and 600 ppm with respect to the PVDF manufactured.
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4 Process according to Claim 1, in which the potassium
alkylsulphonate is chosen from potassium ethylsulphonate, methyl-sulphonate,
isopropylsulphonate and n-propylsulphonate.

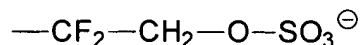
5 5 Process according to Claim 1, in which the proportion of
potassium alkylsulphonate is between 0 and 300 ppm with respect to the PVDF
manufactured.

10 6 The process of Claim 1 wherein said process is a batchwise or
semi-continuous process for the manufacture of PVDF homopolymer or
copolymer, in which:

- the polymerization reactor is charged with water, the optional surface-active additive and optionally a paraffin wax,
- the reactor is deaerated to remove the oxygen,
- 15 • the reactor is brought to the chosen temperature and VDF and the optional monomer are charged until the desired pressure is reached,
- the transfer agent is introduced into the reactor, either in its entirety or partly at the start of and partly during the polymerization,
- the persulphate (the initiator) is added, in its entirety or in part, to start
20 the polymerization and the fall in pressure which results therefrom is compensated for by the addition of VDF and of the optional comonomer,
- the possible remaining initiator is added during the polymerization,
- after introduction of the planned amount of VDF and of optional comonomer, the reactor is degassed and an aqueous PVDF dispersion
25 is obtained,
- the aqueous PVDF dispersion is washed, optionally after having been coagulated, to lower the proportion of possible surfactant in the PVDF below 300 ppm, this proportion being expressed with regard to the dried PVDF,
- 30 • sodium acetate and optionally a potassium alkylsulphonate are added to the washed dispersion,
- the dispersion from the preceding stage is dried by any means to recover the PVDF powder comprising the sodium acetate and optionally a potassium alkylsulphonate.

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- 5 7 Polyvinylidene fluoride (PVDF) homopolymer or copolymer comprising sodium acetate, optionally a potassium alkylsulphonate, less than 300 ppm of surface-active additive and chain ends:



- 10 originating from the use of the persulphate as initiator.

- 8 PVDF according to Claim 7, in which the surface-active additive is chosen from those of general formula: $\text{ZC}_n\text{F}_{2n}\text{COOM}$ in which Z is a fluorine or chlorine atom, n is an integer with a value from 6 to 13
15 and M is a hydrogen or alkali metal atom or an ammonium group or an ammonium group comprising at least one lower alkyl substituent

- 9 PVDF according to Claim 7, in which the proportion of sodium acetate is between 50 and 600 ppm with respect to the PVDF.
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- 10 PVDF according to Claim 7, in which the potassium alkylsulphonate is chosen from potassium ethylsulphonate, methyl- sulphonate, isopropylsulphonate and n-propylsulphonate.

- 25 11 PVDF according to Claim 7, in which the proportion of potassium alkylsulphonate is between 0 and 300 ppm with respect to the PVDF.